

# TESTING & ENGINEERING CO.

GENERAL OFFICES: 1919 SOUTH HIGHLAND AVE., SUITE 210-B, LOMBARD, ILLINOIS 60148 • TEL: 708-953-9300 FAX: 708-953-9306

ISP0086

Member of the SGS Group (Société Générale de Surveillance)

July 21, 1998

INLAND STEEL COMPANY Research Laboratory 3001 East Columbus Drive East Chicago, IN 46312 Attn: Chuck Froman

Saeid Kamalpour

PLEASE ADDRESS ALL CORRESPONDENCE TO: 16130 VAN DRUNEN RD. SOUTH HOLLAND, IL 60473 TEL: (708) 331-2900

FAX: (708) 333-3060

Sample identification by CT&E Co.

Kind of sample

reported to us

Furnace Coke

Sample ID: Shenago Furnace Coke

Sample taken at

Sample taken by

Inland Steel Company

CT&E Co.

Date sampled July 1, 1998

P.O. No. 6-H-8802

Date received July 1, 1998

ADDED CSR/CRI 7/21/98

Analysis Report No.

71-70527

Page 1 of 3

	As Received	<u>Dry Basis</u>
% Moisture % Ash	2.09 8.64	xxxxx 8.82
CRI CSR		29.7 56.0
Bulk Density, L % Porosity Apparent Specif True Specific G Stability	ic Gravity	27.0 53.43 0.89 1.911 61.8
Void Fraction		.5366*

\* Note: Void Fraction performed in a 1 cubic foot box.

METHODS

riginal Watermarked For Your Protection

Ash: ASTM D 3174; Bulk Density: ASTM D 4292; Porosity: Calculated Value; Apparent Specific Gravity: Modified ASTM D 5004; True Specific Gravity: ASTM D 167; Stability: ASTM D 3402

TERMS AND CONDITIONS ON REVERSE

Void Fraction: Inland Steel in-house procedure

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES F-465/071/95

BEST AVAILABLE COP

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PLEASE ADDRESS ALL CORRESPONDENCE TO: 16130 VAN DRUNEN RD. SOUTH HOLLAND, IL-60473 TEL: (708) 331-2900 FAX: (708) 333-3060

July 21, 1998

INLAND STEEL COMPANY Research Laboratory 3001 East Columbus Drive East Chicago, IN 46312 Attn: Chuck Froman

Sample identification by

CT&E Co.

Kind of sample

Furnace Coke reported to us

Sample ID: Shenago Furnace Coke

Inland Steel Company Sample taken at

Sample taken by CT&E Co.

> Date sampled July 1, 1998

P.O. No. 6-H-8802

Date received July 1, 1998

ADDED CSR/CRI 7/21/98

Analysis Report No. 71-70527

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MINERAL ANALYSIS	Ignited Basis, % Weight
Silica, SiO <sub>2</sub>	50.00
Alumina, Al <sub>2</sub> O <sub>3</sub>	27.92
Titania, TiO2	1.18
Iron oxide, Fe <sub>2</sub> 0 <sub>3</sub>	7.21
Calcium oxide, CaO	2.02
Magnesium oxide, MgO	0.71
Potassium oxide, K <sub>2</sub> O	1.60
Sodium oxide, Na <sub>2</sub> 0	0.55
Sulfur trioxide, SO3	1.11
Phosphorus pentoxide, P205	0.31
Strontium oxide, SrO	0.10
Barium oxide, BaO	0.10
Manganese oxide, Mn <sub>3</sub> O <sub>4</sub>	0.07
Undetermined	7.12
	100.00

METHOD

Phosphorus pentoxide: ASTM D 2795; Sulfur trioxide: ASTM D 5016; Barium & Strontium oxide: ASTM D 3682-ICP

Balance of oxides: ASTM D 3682

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.

Appl. No. 09/846,829

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Member of the SGS Group (Société Générale de Surveillance)

PLEASE ADDRESS ALL CORRESPONDENCE TO: 16130 VAN DRUNEN RD. SOUTH HOLLAND, IL 60473

TEL: (708) 331-2900 FAX: (708) 333-3060

July 21, 1998

INLAND STEEL COMPANY Research Laboratory 3001 East Columbus Drive East Chicago, IN 46312 Attn: Chuck Froman

Sample identification by CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

> Date sampled July 1, 1998

Date received July 1, 1998

Sample ID: Shenago Furnace Coke

P.O. No. 6-H-8802

ADDED CSR/CRI 7/21/98

Analysis Report No.

71-70527

Page 3 of

#### SIEVE ANALYSIS

		CUMULATIVE	RESULTS
Retained on	% Weight	% Retained	%Passing
411 0~		0.00	100.00
4" SQ	0.00	0.00	100.00
3" Sq	4.20	4.20	95.80
2" Sq	41.41	45.61	54.39
1 1/4" Sq	45.19	90.80	9.20
1" Sq	6.73	97.53	2.47
3/8" Sq	1.39	98.92	1.08
0	1.08	100.00	0.00
	4" Sq 3" Sq 2" Sq 1 1/4" Sq 1" Sq 3/8" Sq	4" Sq 0.00 3" Sq 4.20 2" Sq 41.41 1 1/4" Sq 45.19 1" Sq 6.73 3/8" Sq 1.39	4" Sq 0.00 0.00 3" Sq 4.20 4.20 2" Sq 41.41 45.61 1 1/4" Sq 45.19 90.80 1" Sq 6.73 97.53 3/8" Sq 1.39 98.92

METHOD

Sieve Analysis: ASTM D 293

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.

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4 of 64 ISP0086

Member of the SGS Group (Société Générale de Surveillance)

August 31, 1998

PLEASE ADDRESS ALL CORRESPONDENCE TO: 16130 VAN DRUNEN RD. SOUTH HOLLAND, IL 60473

TEL: (708) 331-2900 FAX: (708) 333-3060

INLAND STEEL COMPANY Plant 2 Blast Furnaces (2-606) 3210 Watling Street East Chicago, IN 46312 Attn: Chuck Froman

Sample identification by CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample ID: Shenango Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

Date sampled August 7, 1998

Date received August 7, 1998

P.O. No. 6-H-8802

Analysis Report No. 71-73635

Page 1 of 4

CRI CSR	21.1 69.9
Bulk Density, Lb/Cf % Porosity	30.6 48.70
Apparent Specific Gravity	0.99
True Specific Gravity	1.93
Stability	62.8
Void Fraction	.5504

<sup>\*</sup> Note: Void Fraction performed in a 1 cubic foot box.

Bulk Density: ASTM D 4292; Porosity: Calculated Value; Apparent Specific Gravity: Modified ASTM D 5004; True Specific Gravity: ASTM D 167; Stability: ASTM D 3402 Void Fraction: Inland Steel in-house procedure

10/7/98

CO.



Appl. No. 09/846,829

Filed 0500MMERCIAL TESTING & ENGINEERING CO.

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SINCE 1908

Member of the SGS Group (Société Générale de Surveillance)

PLEASE ADDRESS ALL CORRESPONDENCE TO: 16130 VAN DRUNEN RD. SOUTH HOLLAND, IL 60473

TEL: (708) 331-2900 FAX: (708) 333-3060

August 31, 1998

INLAND STEEL COMPANY
Plant 2 Blast Furnaces (2-606)
3210 Watling Street
East Chicago, IN 46312
Attn: Chuck Froman

Sample identification by

CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample ID: Shenango Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

Date sampled August 7, 1998

P.O. No. 6-H-8802

Date received August 7, 1998

Analysis Report No.

71-73635

Page 2 of 4

MINERAL ANALYSIS	Ignited Basis, % Weight
Silian Sio.	F1 00
Silica, SiO <sub>2</sub>	51.00
Alumina, Al <sub>2</sub> 0 <sub>3</sub>	27.30
Titania, TiO <sub>2</sub>	1.15
Iron oxide, Fe <sub>2</sub> 0 <sub>3</sub>	13.46
Calcium oxide, CaO	1.41
Magnesium oxide, MgO	0.72
Potassium oxide, K <sub>2</sub> 0	1.80
Sodium oxide, Na <sub>2</sub> 0	0.62
Sulfur trioxide, SO3	0.83
Phosphorus pentoxide, P205	0.26
Strontium oxide, SrO	0.09
Barium oxide, BaO	0.08
Manganese oxide, Mn <sub>3</sub> 0 <sub>4</sub>	0.07
Undetermined	1.21
•	100.00

METHOD

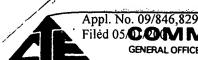
Phosphorus pentoxide: ASTM D 2795; Sulfur trioxide: ASTM D 5016; Barium & Strontium oxide: ASTM D 3682-ICP

Balance of oxides: ASTM D 3682

Bespectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO

, Manager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES 15/071/95 IN Watermarked For Your Protection TERMS AND CONDITIONS ON REVERSE



# Filed 05/00MMERCIAL TESTING & ENGINEERING CO.

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<del>EXHIBIT D</del> 6 of 64 ISP0086

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PLEASE ADDRESS ALL CORRESPONDENCE TO: 16130 VAN DRUNEN RD.

SOUTH HOLLAND, IL 60473 TEL: (708) 331-2900 FAX: (708) 333-3060

August 31, 1998

INLAND STEEL COMPANY Plant 2 Blast Furnaces (2-606) 3210 Watling Street East Chicago, IN 46312

Attn: Chuck Froman Mail Code 2606 Sample identification by

CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

Date sampled August 7, 1998

Date received August 7, 1998 Sample ID: Shenango Coke

P.O. No. 6-H-8802

Analysis Report No.

71-73635

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#### SIEVE ANALYSIS

			CUMULATIVE	RESULTS
Passing	Retained on	% Weight	% Retained	%Passing
	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	2.23	2.23	97.77
3" Sq	2" Sq	32.89	35.12	64.88
2" Sq	1 1/4" Sq	50.99	86.11	13.89
1 1/4" Sq	1" Sq	9.88	95.99	4.01
1" Sq	3/8" Sq	1.96	97.95	2.05
3/8" Sq	0	2.05	100.00	0.00

METHOD

Sieve Analysis: ASTM D 293

Respectfully submitted,

Manager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES 65/071/95 nai Watermarked For Your Protection TERMS AND CONDITIONS ON REVERSE



# APPLING & ENGINEERING CO.

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EXHIBIT D 7 of 64 ISP0086

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Member of the SGS Group (Société Générale de Surveillance)

PLEASE ADDRESS ALL CORRESPONDENCE TO: 16130 VAN DRUNEN RD. SOUTH HOLLAND, IL 60473

TEL: (708) 331-2900 FAX: (708) 333-3060

August 31, 1998

INLAND STEEL COMPANY
Plant 2 Blast Furnaces (2-606)
3210 Watling Street
East Chicago, IN 46312
Attn: Chuck Froman

Sample identification by

CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample ID: Shenango Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

Date sampled August 7, 1998

P.O. No. 6-H-8802

Date received August 7, 1998

Analysis Report No.

71-73635

Page 4 of 4

#### SHORT PROXIMATE ANALYSIS

	As Received	Dry Basis		
% Moisture	4.34	xxxxx		
%Ash	8.84	9.24		
Btu/lb	12660	13234	MAF	14581
% Sulfur	0.70	0.73		

METHODS

Moisture: ASTM D 4931; Ash: ASTM D 4422; Btu/lb: ASTM D 3286; Sulfur: ASTM D 4239 (Method C)

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.



Filed 05/01/2001

COMMERCIAL TESTING & ENGINEERING CO.



GENERAL OFFICES: 1919 SOUTH HIGHLAND AVE., SUITE 210-B, LOMBARD, ILUNOIS 60148 • TEL: 708-953-9300 FAX: 708-953-9306

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Member of the SGS Group (Société Générale de Surveillance)

September 22, 1998

INLAND STEEL COMPANY Research Laboratory 3001 East Columbus Drive Bast Chicago, IN 46312 Attn: Pinakin Chaubal

PLEASE ADDRESS ALL CORRESPONDENCE TO: 18130 VAN DRUNEN RD. SOUTH HOLLAND, IL 60473 TEL: (708) 931-2900 FAX: (708) 333-3060

Sample identification by

CTAE Co.

Kind of sample

reported to us Furnace Coke

Sample taken at Inland Steel Company .

Sample ID: Indy Furnace Coke

No. 6 Stockhouse

Sample taken by CT&E Co.

Date sampled September 2, 1998

Date received September 2, 1998

P.O. No. 6-H-8802

Analysis Report No.

71-75649

Page 1 of

#### SMALL PROXIMATE ANALYSIS

	As Received	Dry Basis
<b>♦</b> Moisture	2.75	300000
♦ Ash	7.78	8.00
Volatile	0.51	0.52
% Fixed Carbon	_88.96	91.48
	100.00	100.00
% Sulfur	0.50	0.51
CSR		57.8
CRI		32.1

METHODS

Moisture: ASTM D 3302; Ash: ASTM D 3174; Volatile: ASTM D 3175; Fixed Carbon: Calculated Value; ASTM D 3172 Sulfur: ASTM D 4239 (Method C); CSR/CRI ASTM D 5341

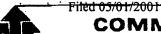
Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.

Aspeger South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES 465/071/95 enal Watermarked For Your Protection TERMS AND CONDITIONS ON REVERSE

**EXHIBIT D** 

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## COMMERCIAL TESTING & ENGINEERING CO.

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Member of the SGS Group (Société Générale de Surveillance)

PLEASE ADDRESS ALL CORRESPONDENCE TO: 16130 VAN DRUNEN RD. SOUTH HOLLAND, IL 80473 TEL: (708) 331-2900 FAX: (708) 333-3060

September 22, 1998

INLAND STEEL COMPANY Research Laboratory 3001 East Columbus Drive East Chicago, IN 46312 Attn: Pinakin Chaubal

Sample identification by CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample ID:

Indy Furnace Coke

Sample taken at Inland Steel Company No. 6 Stockhouse

Sample taken by CTEE Co.

Date sampled September 2, 1998

Date received September 2, 1998

P.O. No. 6-H-8802

71-75649

Analysis Report No.

Page 2 of

MINERAL ANALYSIS	Ignited Basis, & Weight
Silica, SiO <sub>2</sub>	50.7 <b>4</b>
Alumina, Al <sub>2</sub> 0 <sub>3</sub>	29.42
Titania, TiO2	1,42
Iron oxide, Fe <sub>2</sub> 0 <sub>3</sub>	13.12
Calcium oxide, CaO	0.76
Magnesium oxide, MgO	0.75
Potassium oxide, K <sub>2</sub> O	1.75
Sodium oxide, Na <sub>2</sub> O	0.75
Sulfur trioxide, 502	0.15
Phosphorus pentoxide, P205	0.18
Strontium oxide, SrO	. 0.11
Barium oxide, BaO	0.11
Manganese oxide, Mn304	0.10
Undetermined	0.64
	100.00

METHOD

Phosphorus pentoxide: ASTM D 2795; Sulfur trioxide: ASTM D 5016; Barium & Strontium oxide: ASTM D 3682-1CP Balance of oxides: ASTM D 3682

> Respectfully submitted. COMMERCIAL TESTING & ENGINEERING CO

Manager, South Holland Laboratory

IVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES 171/95 Watermarked For Your Protection TERMS AND CONDITIONS ON REVERSE



# COMMERCIAL TESTING & ENGINEERING CO.

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Member of the SGS Group (Société Générale de Surveillance)

PLEASE ADDRESS ALL CORRESPONDENCE TO: 8130 VAN DRUNEN RO. SOUTH HOLLAND, IL 60473 TEL: (708) 331-2900 FAX: (708) 333-3060

INLAND STEEL COMPANY

September 22, 1998

Research Laboratory 3001 East Columbus Drive Bast Chicago, IN 46312 Attn: Pinakin Chaubal

Sample identification by CTEE Co.

Kind of sample

reported to us Furnace Coke

Sample taken at Inland Steel Company

CTAE Co. Sample taken by

> September 2, 1998 Date sampled

Date received September 2, 1998

Sample ID: Indy Furnace Coke No. 6 Stockhouse

P.O. No. 6-H-8802

Analysis Report No.

71-75649

Page 3 of 4

#### SIEVE ANALYSIS

			CUMULATIVE	RESULTS
Passing	Retained on	% Weight	* Retained	Passing
	4" 8q	0.00	0.00	100.00
4º Sq	3 1/2" Sq	0.00	0.00	100.00
3 1/2" Sq	3" Sq	1.14	1,14	98.86
3" Sq	2 1/2" Sq	6.00	7.14	92.86
2 1/2" Sq	2" Sq -	18.12	25.26	74.74
2" 5q	1 1/2" Sq	41.69	66.95	33.05
1 1/2" Sq	1 1/4" Sq	20.15	87.10	12.90
1 1/4" Sq	1" Sq	9.12,30.96	96,22	3.78
1" Sa	0	3.78	100.00	0.00

METHOD

Sieve Analysis: ASTM D 293

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.



September 22, 1998

# COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 1919 SOUTH HIGHLAND AVE., SUITE 210-B. LOMBARD, ILLINOIS 60148 • TEL: 708-953-9300 FAX: 708-963-9306

ISP0086

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•••

PLEASE ADDRESS ALL CORRESPONDENCE TO: 16130 VAN DRUNEN RD. SOUTH HOLLAND, IL 60473 TEL: (708) 331-2900 FAX: (708) 333-3060

INLAND STEEL COMPANY Research Laboratory 3001 East Columbus Drive East Chicago, IN 46312 Attn: Pinakin Chaubal

Sample identification by CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample taken at Inland Steel Company .

Sample ID:

Indy Furnace Coke

No. 6 Stockhouse

Sample taken by CT&E Co.

Date sampled September 2, 1998

Date received September 2, 1998

P.O. No. 6-H-8802

Analysis Report No.

71-75649

Page 4 of 4

Bulk Density, Lb/Cf 31.3
Apparent Specific Gravity 0.958
True Specific Gravity 1.89
Porosity 49.31
Void Fraction 0.5019 \*

Tumbler Test

Stability 62.8 Hardness 64.8

\* NOTE: Void Fraction performed in a 1 cubic foot box.

METHODS

Bulk Density: ASTM D 4292; Porosity: Calculated Value; Apparent Specific Gravity, True Specific Gravity, & Porosity: ASTM D 167; Stability/Hardness: ASTM D3402 Void Fraction: Inland in-house procedure

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO

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Member of the SGS Group (Société Générale de Surveillance)

PLEASE ADDRESS ALL CORRESPONDENCE TO: 16130 VAN DRUNEN RD. SOUTH HOLLAND, IL 60473

TEL: (708) 331-2900 FAX: (708) 333-3060

October 23, 1998

INLAND STEEL COMPANY Plant 2 Blast Furnaces (2-606) 3210 Watling Street East Chicago, IN 46312 Attn: Chuck Froman

Sample identification by CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample taken at Inland Steel Company

Sample ID: Mitsui Furnace Coke

No. 6 Stockhouse

Sample taken by CT&E Co.

> Date sampled September 30, 1998

Date received September 30, 1998

P.O. No. 6-H-8802

Analysis Report No. 71-77195

Page 1 of

### SHORT PROXIMATE ANALYSIS

·	As Received	Dry Basis		
% Moisture	5.63	XXXXXX		
de&#</td><td>10.02</td><td>10.62</td><td></td><td></td></tr><tr><td>Btu/lb</td><td>12213</td><td>12942</td><td>MAF</td><td>14480</td></tr><tr><td>% Sulfur</td><td>0.57</td><td>0.60</td><td></td><td>72100</td></tr></tbody></table>				

METHODS

Moisture: ASTM D 4931; Ash: ASTM D 4422; Btu/lb: ASTM D 3286; Sulfur: ASTM D 4239 (Method C)

Respectfully submitted. COMMERCIAL TESTING & ENGINEERING CO.

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Member of the SGS Group (Société Générale de Surveillance)

PLEASE ADDRESS ALL CORRESPONDENCE TO: 16130 VAN DRUNEN RD. SOUTH HOLLAND, IL 60473

TEL: (706) 331-2900 FAX: (708) 333-3060

October 23, 1998

INLAND STEEL COMPANY Plant 2 Blast Furnaces (2-606) 3210 Watling Street East Chicago, IN 46312 Attn: Chuck Froman

Sample identification by CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample taken at Inland Steel Company Sample ID: Mitsui Furnace Coke

No. 6 Stockhouse

Sample taken by CT&E Co.

> Date sampled September 30, 1998

Date received September 30, 1998

P.O. No. 6-H-8802

Analysis Report No. 71-77195

Page 2 of

CRI	22.75
CSR	66.15
Bulk Density, Lb/Cf	33.4
% Porosity	49.47
Apparent Specific Gravity	0.96
True Specific Gravity	1.90
Stability	62.5
Void Fraction	515Q

\* Note: Void Fraction performed in a 1 cubic foot box.

#### METHODS

Bulk Density: ASTM D 4292; Porosity: Calculated Value; Apparent Specific Gravity: Modified ASTM D 5004; True Specific Gravity: ASTM D 167; Stability: ASTM D 3402 Void Fraction: Inland Steel in-house procedure

Respectfully submitted. COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES

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Member of the SGS Group (Société Générale de Surveillance)

PLEASE ADDRESS ALL CORRESPONDENCE TO: 16130 VAN DRUNEN RD. SOUTH HOLLAND, IL 60473 TEL: (708) 331-2900 FAX: (708) 333-3060

October 23, 1998

INLAND STEEL COMPANY Plant 2 Blast Furnaces (2-606) 3210 Watling Street East Chicago, IN 46312 Attn: Chuck Froman

Sample identification by

CT&E Co.

Kind of sample

Furnace Coke reported to us

Sample ID: Mitsui Furnace Coke

No. 6 Stockhouse

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

Date sampled

September 30, 1998

Date received

September 30, 1998

P.O. No. 6-H-8802

Analysis Report No.

71-77195

Page 3 of

Ignited Basis, % Weight
55.81
31.62
1.47
3.93
2.13
0.75
0.80
0.51
0 _ 45
0.65
0.10
0.20
0.07
1.51
100.00

METHOD

Phosphorus pentoxide: ASTM D 2795; Sulfur trioxide: ASTM D 5016; Barium & Strontium oxide: ASTM D 3682-1CP

Balance of oxides: ASTM D 3682

Respectfully submitted. COMMERCIAL TESTING & ENGINE



EXHIBIT D

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Member of the SGS Group (Société Générale de Surveillance)

October 23, 1998

PLEASE ADDRESS ALL CORRESPONDENCE TO: 16130 VAN DRUNEN RD. SOUTH HOLLAND, IL 60473 TEL: (708) 331-2900 FAX: (708) 333-3080

INLAND STEEL COMPANY Plant 2 Blast Furnaces (2-606) 3210 Watling Street East Chicago, IN 46312

Attn: Chuck Froman

Mail Code 2606

Sample identification by CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

> Date sampled September 30, 1998

Date received September 30, 1998

Sample ID:

Mitsui Furnace Coke

No. 6 Stockhouse

P.O. No. 6-H-8802

Analysis Report No.

71-77195

Page

#### SIEVE ANALYSIS

Dennin.			<u>CUMULATIVE</u>	RESULTS
Passing	Retained on	% Weight	& Retained	%Passing
4" Sq 3" Sq 2" Sq 1 1/4" Sq 1" Sq 3/8" Sq	4" Sq 3" Sq 2" Sq 1 1/4" Sq 1" Sq 3/8" Sq	0.34 2.83 29.31 56.97 7.06 40 <sup>3</sup> 1.03	0.34 3.17 32.48 89.45 96.51 97.54	99.66 96.83 67.52 10.55 3.49 2.46
-		3 49	100.00	0.00

METHOD

Sieve Analysis: ASTM D 293

Respectfully submitted. COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTB, AND RIVER LOADING FACILITIES

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16 of 64 ISP0086

16130 VAN DRUNEN RD.

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# COMMERCIAL TESTING & ENGINEERING CO.

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SINCE 1908

Member of the SGS Group (Société Générale de Surveillance)

November 3, 1998

INLAND STEEL COMPANY 3210 Watling Street Mail Code 8232 East Chicago, IN 46312 Attn: Bill Ambry - M/C 8161

Sample identification by Inland Steel Company

Kind of sample

Furnace Coke reported to us

Inland Steel Company Sample taken at

CT&E Co. Sample taken by

Date sampled October 21, 1998

Date received October 21, 1998

Sample ID: Mitsui Furnace Coke

Release No. xxx

P.O. No. 6-H-8802

Analysis Report No. 71-78623 Page 1 of

Porosity

50.00

Apparent Specific Gravity

0.97

True Specific Gravity

1.94

Porosity: Calculated Value; Apparent Specific Gravity

True Specific Gravity: ASTM D 167

Respectfully submitted,

COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory



OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES -465/071/95 iginal Watermarked For Your Protection TERMS AND CONDITIONS ON REVERSE

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SOUTH HOLLAND, IL 80473 TEL: (708) 331-2900

FAX: (708) 333-3060

INDIANA HARBOR COKE COMPANY 3210 Watling St. Mail C. 2-990

East Chicago, IN 46312 Attn: Joan Etter

November 10, 1998

Sample identification by CT&E Co.

Kind of sample

reported to us Metallurgical Furnace Coke

Indiana Harbor Coke Co. Sample taken at

Sample taken by Mechanical by CT&E Co.

Date sampled October 31, 1998

Date received October 31, 1998

Sample ID: 103198-A

Analysis Report No. 71-79183

Page 1 of

Apparent Specific Gravity 0.97 True Specific Gravity 1.93

Porosity

49.7

METHODS

ASG/TSG/Porosity: ASTM D 167

Respectfully submitted. COMMERCIAL TESTING & ENGINEERING CO.



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Appl. No. 09/846,829

Filed 05/01/2001

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November 10, 1998

INDIANA HARBOR COKE COMPANY 3210 Watling St. Mail C. 2-990 East Chicago, IN 46312 Attn: Joan Etter

PLEASE ADDRESS ALL CORRESPONDENCE TO: 16130 VAN DRUNEN AD. SOUTH HOLLAND, IL 60473 TEL: (708) 331-2900 FAX: (708) 333-3060

Sample identification by CT&E Co.

103098-A

Kind of sample

reported to us Metallurgical Furnace Coke

Sample taken at Indiana Harbor Coke Co.

Sample taken by Mechanical by CT&E Co.

Date sampled October 30, 1998

Date received October 30, 1998

Analysis Report No. 71-79151

Page 1 of

Apparent Specific Gravity 0.94 True Specific Gravity 1.91

Porosity

50.8

Sample ID:

METHODS

ASG/TSG/Porosity: ASTM D 167

Respectfully submitted.

COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES 165/071/95 inal Watermarked For Your Protection

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SOUTH HOLLAND, IL 60473 TEL: (708) 331-2900 FAX: (708) 333-3060

Sample identification by

102998-A

November 10, 1998

INDIANA HARBOR COKE COMPANY 3210 Watling St. Mail C. 2-990 East Chicago, IN 46312 Attn: Joan Etter

Kind of sample

reported to us Metallurgical Furnace Coke

Sample taken at Indiana Harbor Coke Co.

Sample taken by Mechanical by CT&E Co.

Date sampled October 29, 1998

Date received October 29, 1998

CT&E Co.

Sample ID:

Analysis Report No. 71-79166

Page 1 of

Apparent Specific Gravity True Specific Gravity

1.93

Porosity

50.8

0.95

METHODS

ASG/TSG/Porosity: ASTM D 167

Respectfully submitted. COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES 65/071/95

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November 23, 1998

INDIANA HARBOR COKE COMPANY 3210 Watling St. Mail C. 2-990 East Chicago, IN 46312

Attn: Joan Etter

PLEASE ADDRESS ALL CORRESPONDENCE TO: 16130 VAN DRUNEN RD. SOUTH HOLLAND, IL 60479 TEL: (708) 331-2900 FAX: (708) 333-3080

Sample identification by CT&E Co.

110298-A

Kind of sample

reported to us Metallurgical Furnace Coke

Sample taken at Indiana Harbor Coke Co.

Sample taken by Mechanical by CT&E Co.

Date sampled November 2, 1998

Date received November 2, 1998

> Analysis Report No. 71-79321

Page 1 of

Apparent Specific Gravity 0.98 True Specific Gravity 1.94

Porosity

49.5

Sample ID:

METHODS

ASG/TSG/Porosity: ASTM D 167

DISTRIBUTION

C: Ostenberg - Inland Steel Co.

Respectfully submitted. COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES



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18130 VAN DRUNEN RD. SOUTH HOLLAND, IL 60473

TEL: (708) 331-2900 FAX: (708) 333-3060

November 23, 1998

INDIANA HARBOR COKE COMPANY 3210 Watling St. Mail C. 2-990 East Chicago, IN 46312 Attn: Joan Etter

Sample identification by CT&B Co.

110198-A

Kind of sample

reported to us Metallurgical Furnace Coke

Sample taken at Indiana Harbor Coke Co.

Sample taken by Mechanical by CT&E Co.

Date sampled November 1, 1998

November 1, 1998 Date received

> Analysis Report No. 71-79430

Page 1 of

Apparent Specific Gravity 0.97 True Specific Gravity 1.92

Porosity

49.6

Sample ID:

**METHODS** 

ASG/TSG/Porosity: ASTM D 167

DISTRIBUTION

C. Ostenberg - Inland Steel Co.

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.

MERCIAL TESTING & ENGINEERING CO.

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INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161 East Chicago, IN 46312 Attn: Bill Ambrey

January 21, 1999

Sample identification by CT&E Co.

Kind of sample

Metallurgical Furnace Coke reported to us

Calculated Coke Composite Sample ID:

"A" Battery

Indiana Harbor Coke Co. Sample taken at

of IHCC Furnace Coke from

Sample taken by Mechanical by CT&E Co.

October 29-31, 1998 Date sampled

November 1-2, 1998

P.O. No.6-J-8802 November 24, 1998 Date received

Analysis Report No. 71-80913-1

Page 1 of

#### SMALL PROXIMATE ANALYSIS

	As Received	Dry Basis
% Moisture	4.27	xxxxx
% Ash	8.39	8.76
% Volatile	0.41	0.43
% Fixed Carbon	86.93	<u>90.81</u>
	100.00	100.00
% Sulfur	0.61	0.64

Moisture: ASTM D 3302; Ash: ASTM D 3174; Volatile: ASTM D 3175; Fixed Carbon: Calculated Value; ASTM D 3172

Sulfur: ASTM D 4239 (Method C)

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.

Mapager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES 65/071/95

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January 21, 1999

INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161 East Chicago, IN 46312 Attn: Bill Ambrey PLEASE ADDRESS ALL CORRESPONDENCE TO: 16130 VAN DRUNEN RD. SOUTH HOLLAND, IL 60473 TEL: (708) 331-2900 FAX: (708) 333-3060

Sample identification by CT&E Co.

Kind of sample

reported to us Metallurgical Furnace Coke

Sample taken at Indiana Harbor Coke Co.

Sample taken by Mechanical by CT&E Co.

Date sampled October 29-31, 1998

November 1-2, 1998

Date received November 24, 1998

Sample ID: Calculated Coke Composite

of IHCC Furnace Coke from

"A" Battery

P.O. No.6-J-8802

Analysis Report No. 71-80913-1

Page 2 of 3

Porosity 50.26

Apparent Specific Gravity 0.96

True Specific Gravity 1.93

Bulk Density lb/ft<sup>3</sup> 29.5

METHODS

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value Density: ASTM D 291

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

Mapager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES

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SOUTH HOLLAND, IL 60473 TEL: (708) 331-2900 FAX: (708) 333-3060

Member of the SGS Group (Société Générale de Surveillance)

January 21, 1999

INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161

East Chicago, IN 46312 Attn: Bill Ambrey

Sample identification by

CT&E Co.

Kind of sample

Metallurgical Furnace Coke reported to us

Indiana Harbor Coke Co. Sample taken at

Sample taken by Mechanical by CT&E Co.

Date sampled October 29-31, 1998

November 1-2, 1998

Date received November 24, 1998

Sample ID: Calculated Coke Composite

of IHCC Furnace Coke from

"A" Battery

P.O. No.6-J-8802

Analysis Report No.

71-80913-1

Page 3 of

#### SIEVE ANALYSIS

			CUMULATIVI	RESULTS
Passing	Retained on	% Weight	% Retained	%Passing
	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	10.01	10.01	89.99
3" Sq	2" Sq	41.22	51.23	48.77
2" Sq	1" Sq	45.42	96.65	3.35
1" Sq	0	3.35	100.00	0.00

Sieve Analysis: ASTM D 293

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWAJER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES

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TEL: (708) 331-2900 FAX: (708) 333-3060

January 21, 1999

INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161 East Chicago, IN 46312 Attn: Bill Ambrey

Sample identification by Citizens G & C Personnel

Kind of sample

reported to us Furnace Coke

Sample ID:

Indy Coke

Sample taken at

Citizens G & C, Indianapolis, IN

Drum #5

Sample taken by

Citizens G & C Personnel

Date sampled

-----

Date received November 24, 1998

P.O. No.6-J-8802

Analysis Report No. 71-80592

Page 1 of

Porosity

49.46

Apparent Specific Gravity

0.93

True Specific Gravity

1.84

Bulk Density lb/ft3

25.7

METHODS

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value

Density: ASTM D 291

Bespectfully submitted, COMMERÇIAL TESTING & ENGINEERING CO

Manager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY-LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES

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TEL: (708) 331-2900 FAX: (708) 333-3060

January 21, 1999

INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161 East Chicago, IN 46312 Attn: Bill Ambrey

Sample identification by Citizens G & C Personnel

Kind of sample

reported to us Furnace Coke

Sample ID:

Indy Coke

Sample taken at

Citizens G & C, Indianapolis, IN

Drum #5

Sample taken by

Citizens G & C Personnel

Date sampled

Date received November 24, 1998

P.O. No.6-J-8802

Analysis Report No.

71-80592

Page 2 of

#### SIEVE ANALYSIS

			CUMULATIV	E RESULTS
Passing	Retained on	% Weight	% Retained	<b>%Passing</b>
	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	24.97	24.97	75.03
3" Sa	2" Sq	55.80	80.77	19.23
2" Sq	1" Sq	18.23	99.00	1.00
1" Sq	0	1.00	100.00	0.00

METHOD

Sieve Analysis: ASTM D 293

Bespectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.



<del>EXHIBIT D</del>

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TEL: (708) 331-2900

FAX: (708) 333-3060

January 21, 1999

INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161 East Chicago, IN 46312 Attn: Bill Ambrey

Sample identification by Citizens G & C Personnel

Kind of sample

Furnace Coke reported to us

Sample ID:

Indy Coke

Sample taken at

Citizens G & C, Indianapolis, IN

Drum #4

Sample taken by

Citizens G & C Personnel

Date sampled

Date received November 24, 1998

P.O. No.6-J-8802

Analysis Report No.

71-80591

1 of Page

Porosity

49.46

Apparent Specific Gravity

0.94

True Specific Gravity

1.86

Bulk Density lb/ft3

25.7

METHODS

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value

Density: ASTM D 291

Respectfully submitted,

COMMERCIAL TESTING & ENGINEERING CO

Manager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES 465/071/95 TERMS AND CONDITIONS ON REVERSE

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January 21, 1999

INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161 East Chicago, IN 46312 Attn: Bill Ambrey

PLEASE ADDRESS ALL CORRESPONDENCE TO: 16130 VAN DRUNEN RD. SOUTH HOLLAND, IL 60473 TEL: (708) 331-2900 FAX: (708) 333-3060

Sample identification by Citizens G & C Personnel

Kind of sample

reported to us Furnace Coke

Sample ID:

Indy Coke

Sample taken at Citizens G & C, Indianapolis, IN Drum #4

Citizens G & C Personnel Sample taken by

Date sampled

Date received November 24, 1998

P.O. No.6-J-8802

Analysis Report No.

71-80591

Page 2 of

#### SIEVE ANALYSIS

			CUMULATIVE	E RESULTS
Passing	Retained on	% Weight	% Retained	%Passing
	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	9.87	9.87	90.13
3" Sq	2" Sq	45.57	55.44	44.56
2" Sq	1" Sq	41.90	97.34	2.66
1" Sq	0	2.66	100.00	0.00

METHOD

Sieve Analysis: ASTM D 293

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING

(Manager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES

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TERMS AND CONDITIONS ON REVERSE

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January 21, 1999

INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161 East Chicago, IN 46312 Attn: Bill Ambrey

Sample identification by Citizens G & C Personnel

Kind of sample

Furnace Coke reported to us

Sample ID: Indy Coke

Sample taken at Citizens G & C, Indianapolis, IN

Drum #3

Sample taken by Citizens G & C Personnel

Date sampled

Date received November 24, 1998

P.O. No.6-J-8802

71-80590 Analysis Report No.

Page 1 of

47.51 Porosity

Apparent Specific Gravity 0.95

True Specific Gravity 1:81

Bulk Density lb/ft3 27.1

METHODS

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value

Density: ASTM D 291

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES 465/071/95 TERMS AND CONDITIONS ON REVERSE jinal Watermarked For Your Protection

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FAX: (708) 333-3060

January 21, 1999

INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161 East Chicago, IN 46312 Attn: Bill Ambrey

Sample identification by Citizens G & C Personnel

Kind of sample

Furnace Coke reported to us

Sample ID: Indy Coke

Citizens G & C, Indianapolis, IN Sample taken at

Drum #3

Citizens G & C Personnel Sample taken by

Date sampled

Date received November 24, 1998.

P.O. No.6-J-8802

Analysis Report No.

71-80590

2 of

#### SIEVE ANALYSIS

			CUMULATIV	E RESULTS
<u>Passing</u>	Retained on	% Weight	% Retained	%Passinq
	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	10.48	10.48	89.52
3" Sq	2" Sq	34.64	45.12	54.88
2" Sq	1" Sq	51.43	96.55	3.45
1" Sq	0	3.45	100.00	0.00

<u>METHOD</u>

Sieve Analysis: ASTM D 293

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.



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Member of the SGS Group (Société Générale de Surveillance)

January 21, 1999

INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161 East Chicago, IN 46312

Attn: Bill Ambrey

PLEASE ADDRESS ALL CORRESPONDENCE TO: 16130 VAN DRUNEN RD. SOUTH HOLLAND, IL 60473 TEL: (708) 331-2900 FAX: (708) 333-3060

Sample identification by Citizens G & C Personnel

Kind of sample

Furnace Coke reported to us

Sample ID: Indy Coke

Sample taken at Citizens G & C, Indianapolis, IN

Drum #2

Citizens G & C Personnel Sample taken by

Date sampled

Date received November 24, 1998

P.O. No.6-J-8802

Analysis Report No.

Page 1 of 2

Porosity

49.73

71-80589

Apparent Specific Gravity

0.93

True Specific Gravity

1.85

Bulk Density lb/ft3

27.4

METHODS

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value Density: ASTM D 291

> Respectfully submitted. COMMERCIAL TESTING & ENGINEERING CO.

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PLEASE ADDRESS ALL CORRESPONDENCE TO: 16130 VAN DRUNEN RD. SOUTH HOLLAND, IL 60473 TEL: (708) 331-2900

FAX: (708) 333-3060

January 21, 1999

INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161 East Chicago, IN 46312 Attn: Bill Ambrey

Sample identification by Citizens G & C Personnel

Kind of sample

reported to us Furnace Coke

Sample taken at Citizens G & C, Indianapolis, IN

Sample ID: Indy Coke Drum #2

Sample taken by Citizens G & C Personnel

Date sampled

Date received November 24, 1998

P.O. No.6-J-8802

Analysis Report No.

71-80589

Page 2 of

#### SIEVE ANALYSIS

			CUMULATIV	E RESULTS
Passing	Retained on	% Weight	% Retained	%Passing
	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	12.48	12.48	87.52
3" Sq	2" Sq	52.97	65.45	34.55
2" Sq	1" Sq	32.41	97.86	2.14
1" Šq	0	2.14	100.00	0.00

METHOD

Sieve Analysis: ASTM D 293

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.

Magager, South Holland Laboratory



OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWAJER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES 65/071/95

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January 21, 1999

INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161 East Chicago, IN 46312 Attn: Bill Ambrey

Sample identification by Citizens G & C Personnel

Kind of sample

reported to us Furnace Coke

Sample ID: Indy Coke

Sample taken at Citizens G & C, Indianapolis, IN

Drum #1

Sample taken by Citizens G & C Personnel

Date sampled --

Date received November 24, 1998

P.O. No.6-J-8802

Analysis Report No. 71-80588

Page 1 of

Porosity

48.07

Apparent Specific Gravity

True Specific Gravity

1.81

0.94

Bulk Density lb/ft3

27.5

#### METHODS

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value Density: ASTM D 291

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES 65/071/95

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INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161 East Chicago, IN 46312 Attn: Bill Ambrey

January 21, 1999

Sample identification by Citizens G & C Personnel

Kind of sample

reported to us Furnace Coke

Sample ID: Indy Coke

Sample taken at Citizens G & C, Indianapolis, IN

Drum #1

Sample taken by Citizens G & C Personnel

Date sampled -----

Date received November 24, 1998

P.O. No.6-J-8802

Analysis Report No.

71-80588

Page 2 of 2

#### SIEVE ANALYSIS

			CUMULATIV	E RESULTS
Passing	Retained on	% Weight	% Retained	%Passing
	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	12.82	12.82	87.18
3" Sq	2" Sq	36.51	49.33	50.67
2" Sq	1" Sq	46.40	95.73	4.27
1" Sq	0	4.27	100.00	0.00

METHOD

Sieve Analysis: ASTM D 293

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES 65/071/95
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February 10, 1999

INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161

East Chicago, IN 46312

Attn: Bill Ambrey

PLEASE ADDRESS ALL CORRESPONDENCE TO: 16130 VAN DRUNEN RD. SOUTH HOLLAND, IL 60473 TEL: (708) 331-2900 FAX: (708) 333-3060

Sample identification by

CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

> Date sampled February 1, 1999

Date received February 2, 1999

Sample ID: Mitsui Coke

P.O. No. 6-J-8802

Analysis Report No.

71-84902

Page 1 of

Porosity

51.55

Apparent Specific Gravity

True Specific Gravity

1.95

0.94

Bulk Density 1b/ft3

35.1

METHODS

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value; Density: ASTM D 291

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.



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FAX: (708) 333-3060

February 10, 1999

INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161 East Chicago, IN 46312 Attn: Bill Ambrey

Sample identification by

CT&E Co.

Kind of sample

Furnace Coke reported to us

Sample ID: Mitsui Coke

Inland Steel Company Sample taken at

Sample taken by CT&E Co.

> Date sampled February 1, 1999

Date received February 2, 1999

P.O. No. 6-J-8802

71-84902

Analysis Report No.

Page 2 of 2

#### SIEVE ANALYSIS

			CUMULATIV	E RESULTS
Passing	Retained on	% Weight	% Retained	<u>%Passing</u>
	4" Sq	0.00	0.00	100.00
4" Sa	3" Sq	1.22	1.22	98.78
3" Sq	2" Sq	20.54	21.76	78.24
2" Sq	1" Sq	67.82	89.58	10.42
1" Sq	0	10.42	100.00	0.00

Sieve Analysis: ASTM D 4749

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES -465/071/95 iginal Watermarked For Your Protection TERMS AND CONDITIONS ON REVERSE

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INLAND STEEL COMPANY

Sample identification by

CT&E Co.

3210 Watling Street Mail Code 8161

East Chicago, IN 46312 Attn: Bill Ambrey

Kind of sample reported to us Furnace Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

> Date sampled January 29, 1999

Date received January 29, 1999 Sample ID: Mitsui Coke

P.O. No. 6-J-8802

Analysis Report No.

71-84771

Page 1 of 2

Porosity

48.26

Apparent Specific Gravity

0.98

True Specific Gravity

1.89

Bulk Density lb/ft3

34.9

METHODS

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value; Density: ASTM D 291

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.



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February 10, 1999

Attn: Bill Ambrey

INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161 East Chicago, IN 46312

Sample identification by

CT&E Co.

Kind of sample

Furnace Coke reported to us

Sample ID: Mitsui Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

> Date sampled January 29, 1999

Date received January 29, 1999 P.O. No. 6-J-8802

Analysis Report No.

71-84771

Page 2 of

#### SIEVE ANALYSIS

		•	CUMULATIV	E RESULTS
Passing	Retained on	% Weight	% Retained	%Passing
	4" Sq	0.65	0.65	99.35
4" Sq	3" Sq	2.59	3.24	96.76
3" Sq	2" Sq	33.62	36.86	63.14
2" Sq	1" Sq	57.75	94.61	5.39
1" Sq	0	5.39	100.00	0.00

METHOD

Sieve Analysis: ASTM D 4749

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory



OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES 65/071/95 inal Watermarked For Your Protection TERMS AND CONDITIONS ON REVERSE

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INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161 East Chicago, IN 46312 Attn: Bill Ambrey

Sample identification by CT&E Co.

Kind of sample Furnace Coke reported to us

Sample ID: Shenango Coke

Inland Steel Company Sample taken at

Sample taken by CT&E Co.

Date sampled February 1, 1999

Date received February 2, 1999

P.O. No. 6-J-8802

52.56

Analysis Report No. 71-84901

0.90 Apparent Specific Gravity

True Specific Gravity 1.90

Bulk Density lb/ft3 33.1

METHODS

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value; Density: ASTM D 291

Porosity

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.

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Sample identification by

CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

Date sampled February 1, 1999

Date received February 2, 1999

Sample ID: Shenango Coke

P.O. No. 6-J-8802

Analysis Report No.

71-84901

Page 2 of 2

#### SIEVE ANALYSIS

•			CUMULATIVE	E RESULTS
Passing	Retained on	% Weight	% Retained	%Passing
	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	1.44	1.44	98.56
3" Sq	2" Sq	21.85	23.29	76.71
2" Sq	1" Sq	61.86	85.15	14.85
1" Sq	0 .	14.85	100.00	0.00

METHOD

Sieve Analysis: ASTM D 4749

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.



February 10, 1999

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TEL: (708) 331-2900 FAX: (708) 333-3060

INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161 East Chicago, IN 46312

Attn: Bill Ambrey

Sample identification by

CT&E Co.

Kind of sample

Furnace Coke reported to us

Shenango Coke Sample ID:

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

Date sampled January 29, 1999

Date received January 29, 1999

P.O. No. 6-J-8802

Analysis Report No. 71-84770

1 of Page 2

Porosity

55.32

0.84

Apparent Specific Gravity

True Specific Gravity 1.88

Bulk Density lb/ft3

31.2

METHODS

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value; Density: ASTM D 291

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.

February 10, 1999

INLAND STEEL COMPANY

East Chicago, IN 46312

3210 Watling Street Mail Code 8161

Attn: Bill Ambrey

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SOUTH HOLLAND, IL 60473 TEL: (708) 331-2900

FAX: (708) 333-3060

Sample identification by

CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample ID: Shenango Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

Date sampled January 29, 1999

Date received January 29, 1999

P.O. No. 6-J-8802

Analysis Report No.

71-84770

2 of Page

#### SIEVE ANALYSIS

			CUMULATIV	E RESULTS
Passing	Retained on	% Weight	% Retained	%Passing
	4"Sq	0.00	0.00	100.00
4"Sq	3" Sq	4.82	4.82	95.18
3" Sq	2" Sq	27.89	32.71	67.29
2" Sq	1" Sq	55.96	88.67	11.33
1" Sq	0	11.33	100.00	0.00

**METHOD** 

Sieve Analysis: ASTM D 4749

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.



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FAX: (708) 333-3060

INLAND STEEL COMPANY 3210 Watling Street

February 18, 1999

Mail Code 8161 East Chicago, IN 46312 Attn: Bill Ambrey

Sample identification by

CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample ID: Usx Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

Date sampled February 2, 1999

Date received February 3, 1999

Release No. XXX P.O. No. 6-J-8802

Analysis Report No. 71-84979 Page 1 of

Porosity

51.61

Apparent Specific Gravity

True Specific Gravity

1.86

0.90

Bulk Density lb/ft3

31.7

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value; Density: ASTM D 291

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.

COMMERCIAL TESTING & ENGINEERING CO. GENERAL OFFICES: 1919 SOUTH HIGHLAND AVE., SUITE 210-B, LOMBARD, ILLINOIS 60148 • TEL: 708-953-9300 FAX: 708-953-9306

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SOUTH HOLLAND, IL 60473
TEL: (708) 331-2900
FAX: (708) 333-3060

Sample identification by CT&E Co.

Mail Code 8161 East Chicago, IN 46312

Attn: Bill Ambrey

INLAND STEEL COMPANY 3210 Watling Street

February 18, 1999

Kind of sample

reported to us Furnace Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

Date sampled February 2, 1999

Date received February 3, 1999

Sample ID: Usx Coke

Release No. XXX

P.O. No. 6-J-8802

Analysis Report No.

71-84979

Page 2 of

#### SIEVE ANALYSIS

			CUMULATIV	E RESULTS
Passing	Retained on	% Weight	% Retained	%Passing
	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	2.83	2.83	97.17
3" Sq	2" Sq	35.10	37.93	62.07
2" Sq	1" Sq	55.68	93.61	6.39
1" Sq	0	6.39	100.00	0.00

METHOD

Sieve Analysis: ASTM D 4749

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.



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FAX: (708) 333-3060

INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161

February 18, 1999

East Chicago, IN 46312 Attn: Bill Ambrey

Sample identification by

CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample ID: Mitsui Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

Date sampled February 3, 1999

Date received February 3, 1999

Release No. XXX P.O. No. 6-J-8802

Analysis Report No. 71-85066

Page 1 of

Porosity 47.28

Apparent Specific Gravity 0.97

True Specific Gravity 1.84

Bulk Density lb/ft3 33.6

METHODS

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value; Density: ASTM D 291

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.



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February 18, 1999

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Sample identification by

CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

Date sampled February 3, 1999

Date received February 3, 1999

Sample ID: Mitsui Coke

Release No. XXX

P.O. No. 6-J-8802

Analysis Report No.

71-85066

Page 2 of 2

#### SIEVE ANALYSIS

			CUMULATIVI	RESULTS
<u>Passing</u>	Retained on	% Weight	% Retained	%Passing
	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	3.80	3.80	96.20
3" Sq	2" Sq	28.29	32.09	67.91
2" Sq	1" Sq	62.80	94.89	5.11
1" Sq	0	5.11	100.00	0.00

METHOD

Sieve Analysis: ASTM D 4749

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES

65/071/95 inal Watermarked For Your Protection

TERMS AND CONDITIONS ON REVERSE



February 18, 1999

Attn: Bill Ambrey

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TEL: (708) 331-2900 FAX: (708) 333-3060

INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161 East Chicago, IN 46312

Sample identification by CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample ID: USX Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

Date sampled February 3, 1999

Date received February 3, 1999

Release No. XXX P.O. No. 6-J-8802

Analysis Report No. 71-85067

Page 1 of

Porosity

51.10

Apparent Specific Gravity

True Specific Gravity

0.89 1.82

Bulk Density lb/ft3

32.6

#### METHODS

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value; Density: ASTM D 291

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.



## MMERCIAL TESTING & ENGINEERING CO.

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February 18, 1999

Attn: Bill Ambrey

INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161 East Chicago, IN 46312

Sample identification by

CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample ID: USX Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

Date sampled February 3, 1999

Date received February 3, 1999 Release No. XXX P.O. No. 6-J-8802

Analysis Report No.

71-85067

2 of Page 2

#### SIEVE ANALYSIS

			CUMULATIV	E RESULTS
Passing	Retained on	% Weight	% Retained	%Passing
	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	0.60	0.60	99.40
3" Sq	2" Sq	22.62	23.22	76.78
2" Sq	1" Sq	58.49	81.71	18.29
1" Sq	0	18.29	100.00	0.00

METHOD

Sieve Analysis: ASTM D 4749

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.



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FAX: (708) 333-3060

INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161 East Chicago, IN 46312

February 18, 1999

Attn: Bill Ambrey

Sample identification by

CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample ID: Mitsui Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

Date sampled February 2, 1999

Date received February 3, 1999

Release No. XXX P.O. No. 6-J-8802

Analysis Report No. 71-84978

Page 1 of

Porosity

47.28

Apparent Specific Gravity

0.97

True Specific Gravity

1.84

Bulk Density lb/ft3

38.3

#### METHODS

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value; Density: ASTM D 291

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.

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PLEASE ADDRESS ALL CORRESPONDENCE TO: 16130 VAN DRUNEN RD.

SOUTH HOLLAND, IL 60473 TEL: (708) 331-2900 FAX: (708) 333-3060

February 18, 1999

INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161

East Chicago, IN 46312

Attn: Bill Ambrey

Sample identification by

CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample taken at Inland Steel Company.

Sample taken by CT&E Co.

Date sampled February 2, 1999

Date received February 3, 1999

Sample ID: Mitsui Coke

Release No. XXX

P.O. No. 6-J-8802

Analysis Report No.

71-84978

2 of Page

#### SIEVE ANALYSIS

			<u>CUMULATIVE</u>	RESULTS
Passing	Retained on	% Weight	% Retained	%Passing
	4" Sq	0.38	0.38	99.62
4" Sq	3" Sq	5.91	6.29	93.71
3" Sq	2" Sq	25.8 <b>9</b>	32.18	67.82
2" Sq	1" Sq	44.19	76.37	23.63
1" Sq	0	23.63	100.00	0.00

METHOD

Sieve Analysis: ASTM D 4749

Respectfully submitted. COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES 465/071/95

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INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161

East Chicago, IN 46312

Attn: Bill Ambrey

Sample identification by

CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

Date sampled February 3, 1999

Date received February 3, 1999

Sample ID: Shenango Coke

Release No. XXX

P.O. No. 6-J-8802

Analysis Report No.

71-85065

Page 1 of

Porosity

53.55

Apparent Specific Gravity

0.85

True Specific Gravity

1.83

Bulk Density lb/ft3

33.5

METHODS

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value; Density: ASTM D 291

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES TERMS AND CONDITIONS ON REVERSE

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INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161 East Chicago, IN 46312 Attn: Bill Ambrey

Sample identification by CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

> Date sampled February 3, 1999

Date received February 3, 1999

Sample ID: Shenango Coke

Release No. XXX P.O. No. 6-J-8802

Analysis Report No. 71-85065

Page 2 of 2

#### SIEVE ANALYSIS

			CUMULATIV	E RESULTS
Passing	Retained on	% Weight	% Retained	%Passing
	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	3.06	3.06	96.94
3" Sq	2" Sq	26.83	29.89	70.11
2" Sq	1" Sq	45.30	75.19	24.81
1" Sq	0	24.81	100.00	0.00

**METHOD** 

Sieve Analysis: ASTM D 4749

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory



OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES 465/071/95

16130 VAN DRUNEN RD. SOUTH HOLLAND, IL 60473

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53 of 64

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February 18, 1999

INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161

East Chicago, IN 46312

Attn: Bill Ambrey

Sample identification by

CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

> Date sampled February 2, 1999

Date received February 3, 1999

Sample ID: Shenago Coke

Release No. XXX

P.O. No. 6-J-8802

Analysis Report No. 71-84977

Porosity 51.91

Apparent Specific Gravity 0.88

True Specific Gravity 1.83

Bulk Density lb/ft3 30.1

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value; Density: ASTM D 291

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.

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February 18, 1999

INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161 East Chicago, IN 46312 Attn: Bill Ambrey

Sample identification by

CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

Date sampled February 2, 1999

Date received February 3, 1999

Sample ID: Shenago Coke

Release No. XXX

P.O. No. 6-J-8802

Analysis Report No.

71-84977

Page 2 of

#### SIEVE ANALYSIS

			CUMULATIVI	E RESULTS
Passing	Retained on	% Weight	% Retained	%Passing
	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	2.01	2.01	97.99
3" Sq	2" Sq	29.40	31.41	68.59
2" Sq	1" Sq	61.59	93.00	7.00
1" Sq	0	7.00	100.00	0.00

METHOD

Sieve Analysis: ASTM D 4749

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES

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TERMS AND CONDITIONS ON REVERSE

February 19, 1999

Mail Code 8161

INLAND STEEL COMPANY 3210 Watling Street

East Chicago, IN 46312 Attn: Bill Ambrey

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FAX: (708) 333-3060

Sample identification by CT&E Co.

Kind of sample

reported to us Furnace Coke

> Sample ID: Mitsui Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

> Date sampled February 5, 1999

Release No. XXX P.O. No. 6-J-8802 Date received February 5, 1999

> Analysis Report No. 71-85160

Page 1 of 2

Porosity 51.81

Apparent Specific Gravity 0.93

True Specific Gravity 1.83

Bulk Density lb/ft3 32.9

METHODS

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value Density: ASTM D 291

> Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.



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February 19, 1999

INLAND STEEL COMPANY 3210 Watling Street Mail Code 8161

East Chicago, IN 46312

Attn: Bill Ambrey

Sample identification by

CT&E Co.

Kind of sample

reported to us Furnace Coke

Inland Steel Company Sample taken at

Sample taken by CT&E Co.

Date sampled February 5, 1999

Date received February 5, 1999

Sample ID: Mitsui Coke

Release No. XXX

P.O. No. 6-J-8802

Analysis Report No.

71-85160

Page 2 of

#### SIEVE ANALYSIS

4" Sq 0.00 0.00 100.00	nq
<u>-</u>	
4 II C~ 2 II C~ 2 42 2 42 67 E'	0
4" Sq 3" Sq 2.43 2.43 97.5"	7
3" Sq 2" Sq 23.73 26.16 73.84	4
2" Sq 1" Sq 67.38 93.54 6.46	6
1" Sq 0 6.46 100.00 0.00	0

Sieve Analysis: ASTM D 4749

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.



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February 19, 1999

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Sample identification by CT&E Co.

Kind of sample

Sample taken at

reported to us Furnace Coke

Inland Steel Company

Sample taken by CT&E Co.

Date sampled February 5, 1999

Date received February 5, 1999

Sample ID: Shenango Coke

Release No. XXX P.O. No. 6-J-8802

Analysis Report No. 71-85159

Page 1 of 2

Porosity

52.17

Apparent Specific Gravity 0.88

True Specific Gravity

1.84

Bulk Density lb/ft3

32.5

#### METHODS

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value Density: ASTM D 291

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES

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East Chicago, IN 46312

Attn: Bill Ambrey

16130 VAN DRUNEN RD. SOUTH HOLLAND, IL 60473 TEL: (708) 331-2900 FAX: (708) 333-3060

CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample taken at Inland Steel Company.

Sample taken by CT&E Co.

> Date sampled February 5, 1999

Date received February 5, 1999

Sample ID: Shenango Coke

Sample identification by

Release No. XXX

P.O. No. 6-J-8802

Analysis Report No.

71-85159

2 of Page

#### SIEVE ANALYSIS

			CUMULATIVE	RESULTS
Passing	Retained on	% Weight	% Retained	%Passing
	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	1.06	1.06	98.94
3" Sq	2" Sq	23.23	24.29	75.71
2" Sq	1" Sq	62.47	86.76	13.24
1" Sq	0	13.24	100.00	0.00

METHOD

Sieve Analysis: ASTM D 4749

Respectfully submitted.

Manager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOGATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES

TERMS AND CONDITIONS ON REVERSE



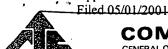
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Mail Code 8161

INLAND STEEL COMPANY 3210 Watling Street

East Chicago, IN 46312

Attn: Bill Ambrey



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Member of the SGS Group (Société Générale de Surveillance)

PLEASE ADDRESS ALL CORRESPONDENCE TO: 16130 VAN DRUNEN RD. SOUTH HOLLAND, IL 60473

TEL: (708) 331-2900 FAX: (708) 333-3060

Sample identification by

CT&E Co.

Kind of sample

Furnace Coke reported to us

Sample ID: USX Coke

Inland Steel Company Sample taken at

Sample taken by CT&E Co.

Date sampled February 5, 1999

Date received February 5, 1999

Release No. XXX P.O. No. 6-J-8802

Analysis Report No. 71-85161

1 of Page

Porosity

50.00

Apparent Specific Gravity

0.90

True Specific Gravity

1.80

Bulk Density lb/ft3

34.3

#### METHODS

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value

Density: ASTM D 291

Respectfully submitted,

COMMERCIAL TESTING & ENGINEERING CO.

Filed 05/01/2001 COMMERCIAL TESTING & ENGINEERING CO.

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Sample identification by

CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

Date sampled February 5, 1999

Date received February 5, 1999

Sample ID: USX Coke

Release No. XXX

P.O. No. 6-J-8802

Analysis Report No.

71-85161

Page 2 of 2

#### SIEVE ANALYSIS

			CUMULATIV	RESULTS
Passing	Retained on	% Weight	% Retained	%Passing
	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	2.66	2.66	97.34
3" Sq	2" Sq	25.51	28.17	71.83
2" Sq	1" Sq	49.98	78.15	21.85
1" Sq	0	21.85	100.00	0.00

METHOD

Sieve Analysis: ASTM D 4749

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.

COMMERCIAL TESTING & ENGINEERING CO.

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16130 VAN DRUNEN RD. SOUTH HOLLAND, IL 60473 TEL: (708) 331-2900

FAX: (708) 333-3060

March 8, 1999

ISPAT INLAND, INC. 3210 Watling Street Mail Code 8161 East Chicago, IN 46312

Attn: Bill Ambrey

Sample identification by

CT&E Co.

Kind of sample

Furnace Coke reported to us

Sample ID: **USX** Coke

Inland Steel Company Sample taken at

Sample taken by CT&E Co.

> Date sampled January 29, 1999

Date received January 29, 1999

P.O. No. 6-J-8802

REVISED SIEVE ANALYSIS 03/08/99

Analysis Report No. 71-84772

1 of 2 Page

Porosity

53.30

0.92

33.0

Apparent Specific Gravity

True Specific Gravity 1.97

Bulk Density lb/ft3

METHODS

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value

Density: ASTM D 291

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES -465/071/95 ginal Watermarked For Your Protection TERMS AND CONDITIONS ON REVERSE

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March 8, 1999

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ISPAT INLAND, INC. 3210 Watling Street Mail Code 8161 East Chicago, IN 46312 Attn: Bill Ambrey

Sample identification by CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

Date sampled January 29, 1999

Date received January 29, 1999

Sample ID: USX Coke

P.O. No. 6-J-8802

REVISED SIEVE ANALYSIS 03/08/99

Analysis Report No.

71-84772

Page 2 of 2

#### SIEVE ANALYSIS

			CUMULATIVE RESULTS	
Passing	Retained on	% Weight	<pre>% Retained</pre>	%Passing
	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	1.48	1.48	98.52
3" Sq	2" Sq	55.66	57.14	42.86
2" Sq	1" Sq	24.25	81.39	18.61
1" Sq	0	18.61	100.00	0.00

**METHOD** 

Sieve Analysis: ASTM D 4749

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES 465/071/95 IIIIAI Watermarked For Your Protection TERMS AND CONDITIONS ON REVERSE

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TEL: (708) 331-2900 FAX: (708) 333-3060

ISPAT INLAND, INC.

Attn: Bill Ambrey

March 8, 1999

3210 Watling Street Mail Code 8161 East Chicago, IN 46312

Sample identification by

CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample ID: **USX** Coke

Inland Steel Company Sample taken at

Sample taken by CT&E Co.

Date sampled February 1, 1999 P.O. No. 6-J-8802

Date received February 2, 1999

REVISED SIEVE ANALYSIS 3/8/99

Analysis Report No. 71-84903 Page 1 of

Porosity

61.34

Apparent Specific Gravity

True Specific Gravity

1.95

0.75

Bulk Density lb/ft3

31.3

METHODS

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value Density: ASTM D 291

Respectfully submitted, COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES 165/071/95 inal Watermarked For Your Protection TERMS AND CONDITIONS ON REVERSE

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16130 VAN DRUNEN RD.

Member of the SGS Group (Société Générale de Surveillance)

March 8, 1999

ISPAT INLAND, INC. 3210 Watling Street

Mail Code.8161

East Chicago, IN 46312

Attn: Bill Ambrey

SOUTH HOLLAND, IL 60473 TEL: (708) 331-2900 FAX: (708) 333-3060

Sample identification by CT&E Co.

Kind of sample

reported to us Furnace Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

Date sampled February 1, 1999

Date received February 2, 1999

Sample ID: USX Coke

P.O. No. 6-J-8802

REVISED SIEVE ANALYSIS 3/8/99

Analysis Report No.

71-84903

Page 2 of

## SIEVE ANALYSIS

Passing	Retained on	% Weight	CUMULATIVE RESULTS	
			% Retained	%Passing
4" Sq 3" Sq 2" Sq	4" Sq 3" Sq 2" Sq 1" Sq	0.00 2.21 34.26 56.07	0.00 2.21 36.47 92.54	100.00 97.79 63.53 7.46
1" Sq	0	7.46	100.00	0.00

METHOD

Sieve Analysis: ASTM D 4749

Respectfully submitted. COMMERCIAL TESTING & ENGINEERING CO.

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES 165/071/95 inal Watermarked For Your Protection TELESCOPE STATE OF THE STATE OF

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